The Sparrowhawk.

By J. H. Owen.

THE sparrowhawk, in a perfectly wild state, is one of our most interesting birds to study. During the nesting period, and especially through the latter part of the incubation period and the whole of the nestling period, it is comparatively easy to observe and photograph the bird. With patience, photographs can be obtained at the nest of the birds, old and young, for something like a fortnight after the young have left the nest. This is because the cock, and in some cases the hen, deposit the kills on the nest, which becomes a larder to a large extent, and the young return to the nest for a meal whenever they are in need of food.

The young are helped to procure food and partly trained by the old birds for a still further period before they are finally dispersed to seek their own living. If the nesting period be considered to start when the building of the nest is begun, and to end at the dispersal of the young, it is of great length. I have seen new nests, practically complete except for the lining of the cup and a few minor details, as early as February 17. I usually search for new nests during the second half of March, and find quite a lot of pairs building them. Birds that do not start during March appear to use old nests of pigeon, jay, hawk, or even magpie as foundations, but they are in a minority in the neighbourhood of Felstead, in Essex, for at least three-quarters of the nests I find are entirely new. Of course, weather conditions have considerable influence on the building of nests; in rough, boisterous, or wet weather and on foggy days operations cease. In a forward year, such as 1916, complete sets of eggs may be found before the end of April; in a normal year it is unusual to find such sets until between May 14 and 21. The bird lays, as a rule, on alternate days, but occasionally there is a period of seventy-two hours between eggs, and sometimes even more. The full set consists of four to six eggs, rarely of seven or more. Very old birds produce fewer eggs, which are less heavily pigmented as the age of the bird increases, while the eggs of a young hen are not so evenly or so heavily pigmented, as a set, as are those of a fully mature bird.

The incubation period varies somewhat, but can be put at approximately thirty-three days. The eggs usually take a long time to hatch, even after they are chipped; it is quite usual for two whole days to elapse after the egg is chipped before the chick emerges—I have known this period to be as long as four days. This is probably because the eggs are not moistened by the hen, the shell is very thick, and the membrane very tough. I have often watched a hen helping a chick to break free from the shell. In such cases I have seen the hen eat the shells, but I feel convinced now that this is not the usual method of disposing of them. Usually they are carried some distance from the nest and dropped.

Like the chicks of all birds of prey, those of the sparrowhawk are covered with short, thick, white down when hatched, and their eyes are open; but the plumage does not show until the bird is more than fourteen days old. The nestling period is about twenty-eight days, and by the end of that time the young birds have mostly acquired their juvenile plumage; but the down does not finally disappear until they are some seven weeks old. During incubation the nest gets flecked with down from the hen, and is a beautiful sight just before incubation ends, if the weather has been good. If the first set of eggs has been taken, the second nest never gets anything like so well flecked; the supply is limited, and has been used up. This may be a survival of what still happens in the nests of ducks and geese. When the young are hatched, this down disappears very quickly; it is partly removed by the weather, but largely by the hen, which probably mistakes it for the feathers of victims. The nest is kept particularly clean all through the incubation and nestling periods until just before the young leave the nest. Then the nest again becomes beautifully and liberally flecked with down; but this time it is shed by the young birds.

When the hen begins to lay, she lines the bottom of the nest with bits of bark, touchwood, and dead leaves, and during the incubation period she adds material, sometimes to the rim and sometimes to the well of the nest, with the object of making the nest stronger and more comfortable. During the nestling period more is added, this time probably partly for sanitary reasons, to keep the young off material contaminated by contact with dead, and often decaying, victims. Dr. T. Lewis has even seen the cock bird bring twigs to the nest during the nestling period.

The hen, in my experience, does all the incubating, and usually the cock procures food for her. This she eats on the larger limbs of trees in the neighbourhood of the nest tree. The cock brings it to some position upwind of her and calls. If she wants it she goes to him and takes it, and they remain together a short time; then he goes away. If, after two or three calls, she does not join him, he flies through the nest tree calling; if she still takes no notice he goes to a favourite feeding-place, not very far from the nest as a rule, eats what he wants, and flies off again. The hen normally sits back to wind (Fig. 1). The proximity of an observation hut upsets her, and she will place herself as near back to wind as possible while keeping the hut still in view. If, however, it rains she will, hut or no hut, turn her back to it. If it rains hard she will gradually move her wings out from her body to cover more completely the well of the nest, and finally get such a spread on them that the primaries are parted, and each acts as a watercourse from her back and wings.

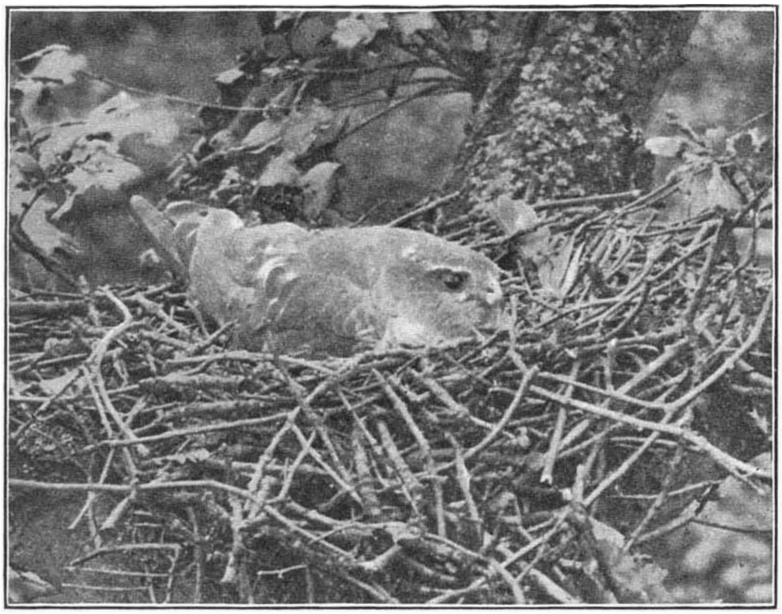

FIG. 1.—Incubating: normal position when easy in mind: very low in nest.

If it is very hot and the sun shines on the nest, she will get up from time to time and stretch or stand beside the eggs (Fig. 2). Sometimes she will preen herself, but she never stays off the eggs for long at a time. If she is very near hatching she will not relieve herself by more than a stretch, although she may be in agony from the direct rays of the sun. All she does is to rise slightly on the eggs and pant with her whole body.

For the first few days after the young are hatched she may be said generally to be covering them completely. As they get stronger and more vigorous they scramble from under her at will if the weather is fit. If it is raining, or the sun is directly on the nest, they have to go under cover. Later, when the weather is suitable, she may be on the nest, but the young may be all clear of her. At such times she will often shut her eyes and nod on the nest.

In wet weather she makes an umbrella of her body. She puts her back to the direction of the storm, the young collect, heads together, in the middle of the nest, and she shuffles over them. She usually opens and depresses her wings so far as the occasion demands. Of course, there are variations of position in this as in everything else. On one occasion, in a very heavy thunderstorm, the hen stood more between the young and the direction of the storm, and threw one wing over the young; then she gradually sank down until this wing was upheld by them (Fig. 3). In storms she usually crouches over the young, but gradually sinks lower until she is resting on them. Always, as she shuffles over them, she looks for the youngest nestling, and pulls it into the most protected position with her bill. Even when brooding is a thing of the past, the approach of a storm will bring her on to the nest very quickly, and she covers it immediately rain begins to fall. If she brings food to the nest she breaks it up first, but if the cock deposits food on the nest during the storm she takes no notice of it. When the storm passes away she will break such food up and then dry herself thoroughly on some branch from which she can watch the nest. She opens her wings and tail, and either faces the wind or has her back to it. She may get in a place where the sun can help the drying, but mostly she trusts to the wind. Sometimes her feathers are almost closed; at other times they are open to their widest extent; the amount of spread varies constantly. After drying is completed she preens herself thoroughly, pay-

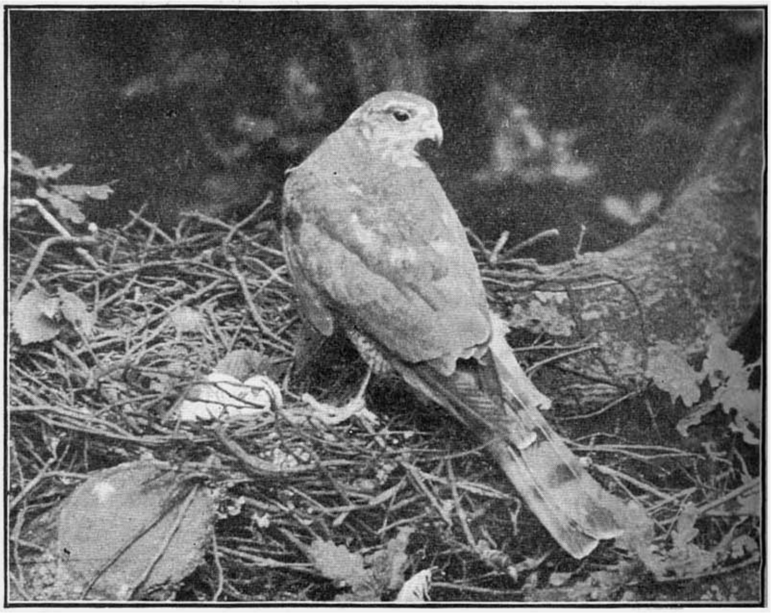

FIG. 2.—Off the nest owing to sun: a pause and look round before returning.

ing particular attention to the flight and tail feathers.

Very interesting, too, is the sight of the hen making efforts to shield the young from the direct rays of a hot sun. When they are small enough for her to do so, she makes a sunshade of her wings and body that will protect them all. She first gets directly between them and the sun, and then she partly opens and depresses her wings, and moves forward until the young are completely in the shade. There she stays in a sort of crouch over them until the sun has moved behind some foliage. The whole time she is in great distress, for her entire body seems to pant, and her tongue works rapidly to and fro.

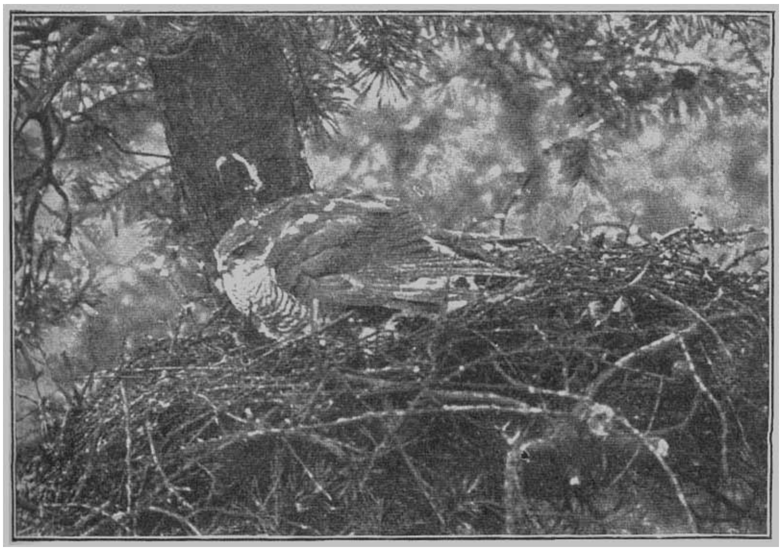

FIG. 3.—Brooding in heavy thunderstorm.

If the young are too big for her to shelter all of them completely, she does what she can. She gets between the sun and the middle of the nest, partly spreads her tail, and opens her wings slightly, standing with her feet apart. The young then take turns to make use of the shade her body affords (Fig. 4). She stays like that as long as it is necessary, and, as before, seems to suffer greatly from the heat the whole time.

The young do not foul the nest with excrement, so that the old bird has not to remove it. They back to the edge of the nest and eject it clear of the rim from a very early age. The branches all round and below the nest become almost whitewashed during the nestling period unless rain comes to clear it away. When the nestlings are nearly ready to leave the nest, less care is taken about keeping it spick-and-span. They are able to feed themselves, and are allowed to do so. What bones they do not swallow are permitted to accumulate on the nest, and by the time the nest is finally deserted it may be covered deep with bones of victims, and many more bones will be found on the ground below the nest.

The cock is the procurer of food, but he takes no part in breaking it up. If the hen is killed during the nestling period he will continue to bring food so long as the nestlings are alive. If they are less than twenty days old they probably all die. If they are over that age they can tear enough food off to keep going, and the majority would survive. If the cock is killed, the hen perforce becomes the hunter, and provides food for the young and herself. I have heard, on very credible authority, that it is by no means uncommon in this case for the hen to get an unmated cock to help her.

There is only one brood in the year. A bird that is robbed lays again, but usually a smaller number of eggs, of which a far larger percentage prove infertile. If robbed again she will continue to produce eggs until July, when moulting normally commences.

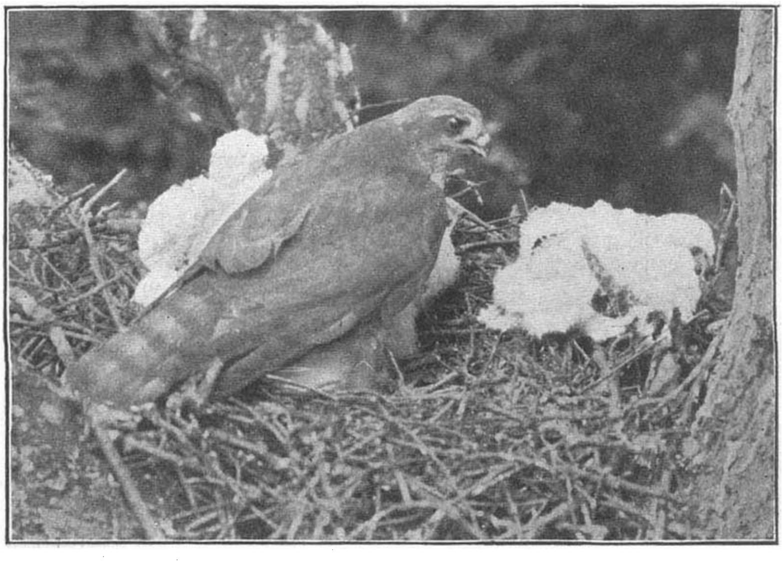

FIG. 4.—Standing with legs apart, tail slightly fanned and wings slightly opened for each nestling to make use of her shadow in turn.